CLAIMS:

1. A compressor impeller having a plurality of blades, and a hub disposed at the root of this plurality of blades, and in which at least part of the surface of said hub on which a fluid flows is inclined in relation to an axis of rotation,

wherein a boundary layer reduction part which induces a reduction in the thickness of a boundary layer occurring due to a flow of fluid, is provided on the surface of said hub.

2. A compressor impeller according to claim 1, wherein said boundary layer reduction part is provided at a position at which the centrifugal force acting on the flow of fluid acts in a direction to separate the flow of fluid from the surface of said hub.

3. A compressor impeller according to claim 1, wherein said boundary layer reduction part is provided on the downstream side from a position approximately 1/4 of the distance from the edge of said impeller inlet to the edge of the outlet, from the edge of said impeller inlet.

4. A compressor impeller according to claim 1, wherein said boundary layer reduction part is formed as a convex part projecting perpendicular to the surface of said hub.

5. A compressor impeller according to claim 4, wherein said convex part is provided as at least one small blade formed along the surface of said blade, between said blades.

6. A compressor impeller according to claim 5, wherein a height of said small blade is set at between approximately 1/10 and approximately 1/2 of the height of said blade.

7. A compressor impeller according to claim 5, wherein a maximum distance between said small blades is set so as to be greater than twice the thickness of the boundary layer occurring due to the flow of fluid, on the surface of said hub.

8. A compressor impeller according to claim 3, wherein said compressor impeller is a centrifugal compressor impeller, and said boundary layer reduction part is provided up to a position at which a force acting perpendicularly to said hub surface becomes zero.

9. A compressor impeller according to claim 8, wherein said boundary layer reduction part is also extended downstream beyond a position at which the force acting perpendicularly to said hub surface is zero.

10. A compressor impeller according to claim 9, wherein said boundary layer reduction part is provided up to the edge of said impeller outlet.

11. A compressor impeller according to claim 3, wherein said compressor impeller is a mixed-flow compressor impeller, and said boundary layer expansion prevention part is provided up to the edge of the outlet of said impeller.

12. A compressor impeller which has a plurality of blades, and a hub disposed at the root of this plurality of blades, and wherein at least part of the surface of said hub on which a fluid flows is inclined in relation to an axis of rotation,

wherein a boundary layer expansion prevention part which prevents expansion of a boundary layer occurring due to a flow of fluid, is provided on the surface of said hub.

13. A compressor impeller according to claim 12, wherein said boundary layer expansion prevention part is provided

at a position at which the centrifugal force acting on the flow of fluid acts in a direction to separate the flow of fluid from the surface of said hub.

14. A compressor impeller according to claim 12, wherein said boundary layer expansion prevention part is provided on the downstream side from a position approximately 1/4 of the distance from the edge of said impeller inlet to the edge of the outlet, from the edge of said impeller inlet.

15. A compressor impeller according to claim 14, wherein said boundary layer reduction part comprises a plurality of grooves.

16. A compressor impeller according to claim 15, wherein said plurality of grooves are formed linearly along the surface of said blades, between said blades.

17. A compressor impeller according to claim 16, wherein said linear grooves are divided into a plurality of regions between upstream and downstream.

18. A compressor impeller according to claim 15, wherein said plurality of grooves are formed in a wave-shape in plan view, between said blades.

19. A compressor impeller according to claim 15, wherein said plurality of grooves are formed in a sawtooth-shape in plan view, between said blades.

20. A compressor impeller according to claim 15, wherein said plurality of grooves comprise a plurality of grooves formed between blades from one blade to another blade, so as to intersect diagonally with the flow path, and a plurality of grooves formed so as to intersect with these grooves, and formed from the other blade to the one blade, so as to intersect diagonally with the flow path.

21. A compressor impeller according to claim 15, wherein said plurality of grooves are formed concentrically with the axis of rotation of said impeller, between said blades.

22. A compressor impeller according to claim 14, wherein said boundary layer reduction part comprises a plurality of concave and convex parts.

23. A compressor impeller according to claim 22, wherein said plurality of concave and convex parts are circular-shaped in plan view.

24. A compressor impeller according to either one of claim 15 and claim 22, wherein a maximum depth of said grooves or said concave and convex parts is between 0.3% and 2.0% of the outside diameter of said impeller.

25. A compressor impeller according to either one of claim 15 and claim 22, wherein a maximum depth of said grooves or said concave and convex parts is between 0.5% and 2.0% of the outside diameter of said impeller.

26. A compressor impeller according to either one of claim 15 and claim 22, wherein said compressor impeller is a centrifugal compressor impeller, and said boundary layer expansion prevention part is provided up to a position at which a force acting perpendicularly to said hub surface is zero.

27. A compressor impeller according to either one of claim 15 and claim 22, wherein said compressor impeller is a mixed-flow compressor impeller, and said boundary layer expansion prevention part is provided up to the edge of the outlet of said impeller.

28. A compressor furnished with an impeller according to either one of claim 1 and claim 12.